Parabolic Aircraft Reduced-Gravity Environment Testing Opportunity for NASA SBIR/STTR Companies

Responses Due By March 28, 2008

Details of Opportunity

The Innovative Partnerships Program (IPP) and Strategic Capabilities Assets Program (SCAP) are offering an opportunity for companies with NASA SBIR/STTR Phase I and II contracts to conduct reduced-gravity testing of their technology aboard parabolic aircraft flights. Technologies must be within the TRL 4-6 range and should be ready for microgravity environment testing.

This is an initial capability demonstration of parabolic aircraft flights to support technology demonstration activities. The FAST project in IPP will be offering opportunities for technology demonstration subsequent to this activity.

Parabolic aircraft flights can provide near zero gravity conditions, partial gravity conditions at lunar (.16 g), and martian (.38 g) gravity levels, as well as other partial gravity levels. The aircraft can also provide sustained hyper-gravity conditions, up to 1.8 g in 0.10 g increments, for periods of up to 1 minute in duration.

Funding Details

Funding has been allocated for one flight week to demonstrate this capability, and there is opportunity during this week for SBIR/STTR technology demonstrations. Therefore, NASA SBIR/STTR companies selected will **NOT** be responsible for the cost of the parabolic aircraft flights. However, companies will be responsible for all other costs, including but not limited to the following:

- Company travel costs to the parabolic flight location
- Physiological training for intended flight test members
- Transportation costs of the technology to the parabolic flight location
- Mandatory flight readiness reviews (as described below)

Flight Readiness Reviews

Technologies selected for reduced-gravity environment testing aboard the parabolic aircraft flights must be able to meet equipment design requirements as determined by the NASA Reduced Gravity Office. Design requirements are given in "Experiment Design Requirements and Guidelines NASA 932 C-9B" [http://jsc-aircraft-ops.jsc.nasa.gov/Reduced_Gravity/docs/AOD_33897.pdf].

Schedule

Responses to this opportunity are due by March 28, 2008. SBIR/STTR technologies will be expected to be ready for flight as early as June 1, 2008. This includes integration into the necessary flight equipment, and having all material required for FRR complete. Integration requirements will need to be submitted approximately 6 weeks prior to flight, and the FRR will occur on the Monday of the planned flight week. However, exact dates of parabolic flights are to be determined and will be provided later on the IPP website at http://ipp.nasa.gov/ii_fast.htm

Technology Selection

The SCAP and IPP offices will work together to determine priority for SBIR/STTR technology flights. Evaluation will be based on NASA technology priority, as determined in coordination with the NASA Mission Directorates, and by environmental conditions needed for the technology to enable demonstration of the parabolic aircraft's standard capabilities, as outlined in section 3 of the "Statement of Work for Reduced Gravity Aircraft Services" [http://prod.nais.nasa.gov/eps/eps_data/123237-SOL-001-004.rtf]. The actual number of selected technologies will be determined based on availability of the parabolic aircraft flights and technology requirements.

Action Requested

NASA SBIR/STTR companies interested in this opportunity should submit the following information to Andrew Petro (andrew.j.petro@nasa.gov) of the IPP Office **no later than March 28, 2008.**

1. Background information
    a. Company name
    b. Company point of contact (Name, email, phone number)
    c. Current SBIR contract number
    d. NASA COTR (Name and NASA Center)
2. Test objectives, including current and planned TRL post-test, and why the parabolic aircraft flights are necessary
3. Desired schedule (exact flight dates will be determined later)
4. Brief description of the test and associated test equipment, including required gravity level, duration of test, and number of tests needed to adequately validate results
5. Number of test personnel required for flight and a description of the requirement for each individual's presence
6. Special constraints or support required, including security classification of project, if applicable
7. Preliminary Hazard Analysis identifying hazards and controls

NASA SBIR/STTR companies should also inform their contracting officer's technical representative (COTR) of this submission.

For more information on parabolic aircraft flight guidelines see "JSC Reduced Gravity Program User's Guide" [http://jsc-aircraft-ops.jsc.nasa.gov/Reduced_Gravity/docs/AOD_33899.pdf].